Tunnel Vision:

2024 Inflation and Growth Forecasts in Historical Perspective

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The past twenty years have witnessed two major spikes in macroeconomic volatility. To many observers, the Global Financial Crisis and the COVID-19 pandemic (including its inflationary aftermath) challenged the idea that developed economies had entered a permanent "Great Moderation"[1] characterized by muted growth fluctuations and low, steady inflation.

And yet, now that those disruptive events have begun to recede from memory, many market participants seem remarkably confident that the moderate conditions that previously prevailed will return.

Surveys of professional forecasters assign low probabilities to extreme inflation and growth outcomes in 2024, with rangebound expectations more characteristic of outcomes experienced during the 1987-2006 period of subdued macroeconomic volatility. If these forecasts are correct, the United States will see a "soft landing" in the coming year, with inflation close to the Federal Reserve's 2% target and moderate GDP growth. While that's a reasonable baseline expectation, we think that forecasters are too certain that 2024 will look like the Great Moderation.

In our research, we've often found that historical distributions can serve as a useful baseline for considering the plausible range of economic outcomes. Through that lens, we see that the distribution of inflation outcomes can be very wide, and that the potential for meaningfully above-consensus growth in 2024 should not be written off.

Inflation: Survey Data

We can use the Survey of Market Participants ("SMP") conducted by the Federal Reserve Bank of New York ("FRBNY") as a proxy for market participants' expectations of U.S. macroeconomic outcomes. The SMP reflects over 25 respondents' views, including ours, and is intended to "enhance policymakers' understanding of market expectations."[2] Each respondent is asked to provide a probability distribution for a range of economic variables, which are aggregated by the FRBNY into a single distribution for each. For the purposes of this discussion, we focus on two variables: PCE inflation and real GDP growth.

Of course, survey results are just one way to gauge expectations, and they may reflect a narrower distribution than certain market-based measures.[3] For example, the pricing of inflation derivatives (an admittedly illiquid product) suggests a wider range of expected outcomes for inflation. Nonetheless, we believe the SMP remains an important benchmark of expectations given its use by policymakers (and the investing public more broadly) and because it's fairly representative of other forecaster surveys.

The most recent available results, which were collected in January 2024 and published in February, are reflected in *Figure 1*. Respondents seem confident that PCE inflation—the Fed's preferred measure—will run at around 2% in 2024, assigning 86% probability to inflation between 1.5% and 3%. The remaining probabilities—4% and 10% likelihoods of inflation below or above that range, respectively—are much lower than those suggested by history.[4]

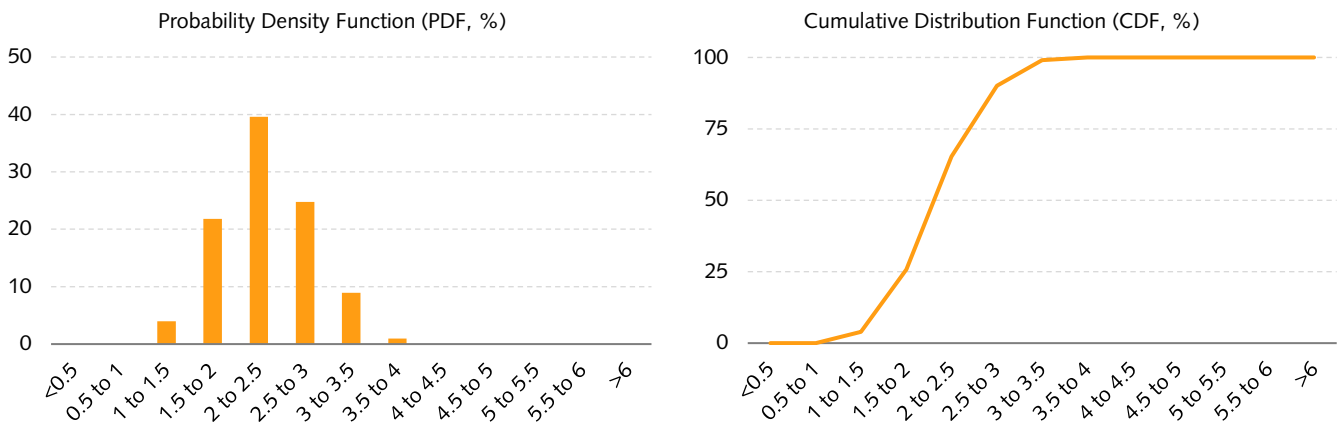
[1] Ben Bernanke, then a governor at the Federal Reserve Board, popularized this term in 2004 remarks to the Eastern Economic Association in Washington, D.C.

[2] See, *e.g.*, Federal Reserve Bank of New York, Survey of Market Participants (January 2024).

[3] Why this might be the case is outside the scope of this piece, but three explanations strike us as plausible. One is that market discipline acts against the behavioral tendency toward overconfidence in judgmental forecasts. A second is that markets may do a better job of reflecting the impact of "unknown unknowns" than forecaster surveys, which may place undue emphasis on current and then-most relevant information. Finally, the market's distributions may be farther from "risk neutral" than forecasters' distributions; for instance, if investors see a tail outcome as especially adverse, the market-implied probability of that outcome may appear elevated.

[4] This phenomenon is not unique to the SMP: the Survey of Professional Forecasters conducted by the Federal Reserve Bank of Philadelphia, which includes a somewhat different mix of respondents, shows a similar distribution of expectations.

Figure 1: Distribution of SMP Expectations for 2024 U.S. Inflation



Sources: Federal Reserve Bank of New York, modified by the D. E. Shaw group.

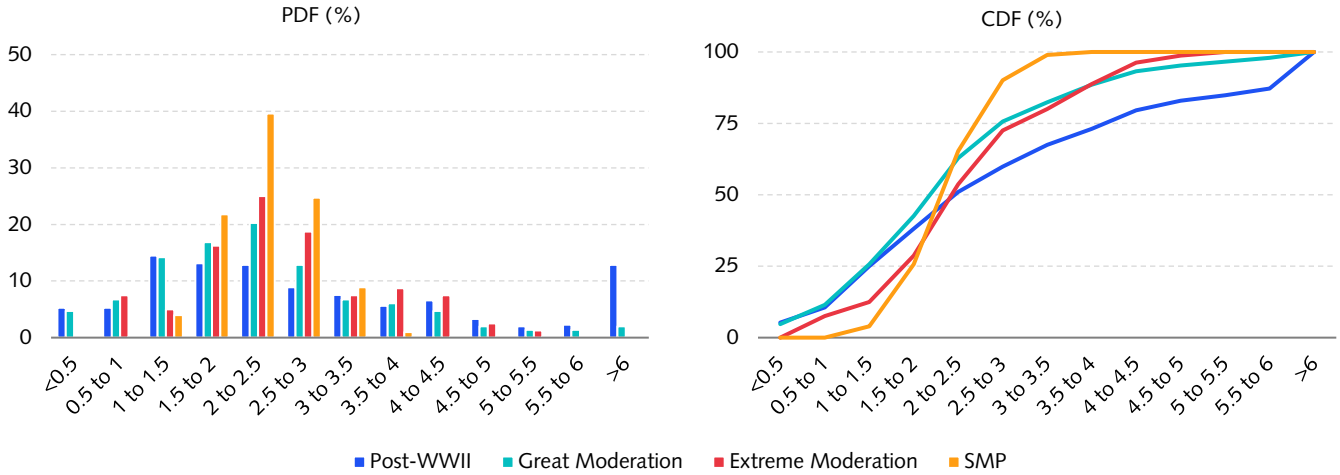
Note: The SMP assigns (a) 4% probability to inflation less than or equal to 1.5% and (b) 1% probability to inflation greater than or equal to 3.5%. To enable historical comparison, in these charts we have assigned those probabilities to the "1 to 1.5%" and "3.5 to 4%" categories, respectively.

Inflation: Historical Data

In *Figure 2*, we compare the distribution of inflation outcomes expected by SMP participants to those realized using a rolling four-quarter lookback in three historical periods:

1. "Post-WWII" (1948 – present): a period representing the full sample over which high-quality macroeconomic data for the United States are generally available
2. "Great Moderation" (1987 – present): a period generally viewed as having greater macroeconomic stability brought on in part by a shift toward more effective monetary policy
3. "Extreme Moderation" (1987 – 2006): a period beginning with the Great Moderation and continuing to the peak of the U.S. housing bubble, over which we witnessed a particularly narrow range of inflation and growth outcomes

Figure 2: Distribution of SMP Expectations for 2024 U.S. Inflation vs. Historical Periods



Sources: Bureau of Economic Analysis; Federal Reserve Bank of New York, modified by the D. E. Shaw group; Haver Analytics; the D. E. Shaw group.

The distribution of outcomes in all three periods is much wider than it is for the SMP. This can be seen most clearly in *Table 1,* which presents the empirical frequency and SMP probability of three ranges of outcomes. For instance, the frequency of inflation outcomes below 1.5% ranged from 12.5% in the Extreme Moderation period to over 25% during the Great Moderation. Similarly, the frequency of inflation above 3% ranged from 24.3% in the Great Moderation period to more than 40% Post-WWII.

Table 1: Distribution of Inflation Outcomes, Historical Periods vs. SMP

Probability/Frequency of Inflation that is…	< 1.5%	≥ 1.5% and ≤ 3.0%	> 3.0%
Post-WWII (1948-present)	25.0%	34.9%	40.1%
Great Moderation (1987-present)	25.7%	50.0%	24.3%
Extreme Moderation (1987-2006)	12.5%	60.0%	27.5%
SMP (2024)	**4.0%**	**86.1%**	**9.9%**

Sources: Bureau of Economic Analysis; Federal Reserve Bank of New York, modified by the D. E. Shaw group; Haver Analytics; the D. E. Shaw group.

Certainly, there are structural differences between the current macroeconomic environment and long stretches of the Post-WWII period. After the painful experience of the 1970s, the Fed seems committed to cutting off inflation's right tail, and, as a result, inflation expectations have remained generally anchored despite higher volatility over the past few years. Additionally, the continued shift in the consumption basket from goods to services, which historically have had more stable prices, might further reduce inflation volatility.

However, recent experience reminds us that long-term macroeconomic history remains relevant. Certain significant contributors to historical inflation volatility—inventory shocks, commodity price swings, and fluctuations in fiscal policy, immigration, and trade—remain impactful. And while these factors are often associated with upside risks to inflation, we also think the SMP understates the downside risks. Even if we discount the *full* Post-WWII period, in our view it strains credulity that the range of plausible outcomes for the coming year is substantially narrower than the distribution of realized outcomes during the Extreme Moderation, arguably the most stable period known to U.S. economic history. This is especially true given the tendency for macroeconomic volatility to "cluster" over time. And in fact, a benchmark model of inflation volatility that takes this tendency into account suggests that 2024 inflation could be at least as volatile as the Post-WWII average.[5]

Growth: Survey and Historical Data

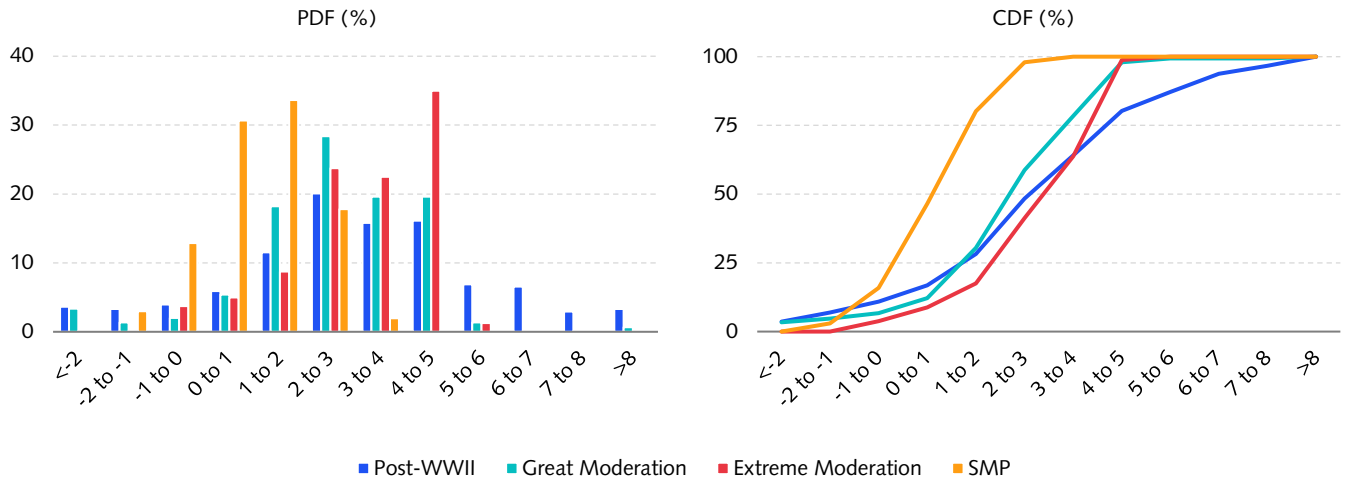
We conduct a similar exercise for real GDP growth. As can be seen in *Figure 3,* the SMP assigns 3% probability to an adverse growth outcome (real GDP below -1%), a bit shy of the long-term historical frequency.

The probability assigned between a moderate recession and soggy growth (-1% to 2% growth) is higher than in the historical distribution, which, while reasonable in isolation, makes the SMP's assessment of near-zero probability of below-target inflation even more surprising. In other words, it seems strange for market participants to simultaneously predict a higher-than-typical probability of weak growth and a lower-than-typical probability of low inflation.

[5] We estimate a model where inflation follows an autoregressive process with GARCH errors (*i.e.*, errors with clustered volatility) on annual data since 1948. Although this is an austere model, it suggests an approximately 24% probability that 2024 inflation will be lower than 1.5% and a roughly 45% probability that it will be higher than 3%. These probabilities are much greater than the corresponding values in the SMP, but similar to the historical distribution of outcomes seen in the Post-WWII sample (*Table 1*).

The biggest difference in the SMP data relative to historical distributions relates to higher growth outcomes. Whereas growth exceeded 2.5% in more than half of Post-WWII observations, SMP participants assign only 9% probability to growth exceeding that level in 2024.

Figure 3: Distribution of SMP Expectations for 2024 U.S. Real GDP Growth vs. Historical Periods

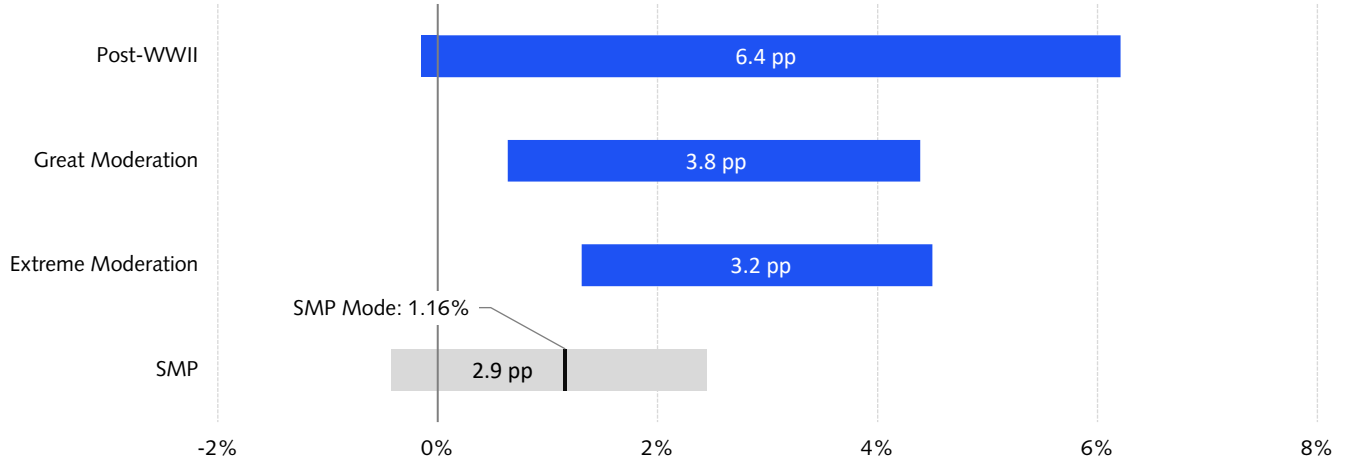


Sources: Bureau of Economic Analysis; Federal Reserve Bank of New York, modified by the D. E. Shaw group; Haver Analytics; the D. E. Shaw group.

Note: The SMP assigns (a) 3% probability to growth less than or equal to -1.01% and (b) 2% probability to growth greater than or equal to 3.01%. To enable historical comparison, in these charts we have assigned those probabilities to the "-2 to -1%" and "3 to 4%" categories, respectively.

To see how far SMP participants' expectations for 2024 growth diverge from history, *Figure 4* plots the range (10th to 90th percentile) of growth outcomes for each of the three historical periods relative to the same range of the SMP data. The SMP range is notably to the left of the other three, with its 90th percentile falling near or below the midway point of the three historical distributions. At the same time, SMP participants' modal expectation is for growth lower than the 10th percentile of outcomes during the Extreme Moderation period. The SMP range is also narrower than the others, at 2.9 percentage points ("pp") relative to 3.2 pp (Extreme Moderation), 3.8 pp (Great Moderation), and 6.4 pp (Post-WWII).

Figure 4: Range of Growth Distributions, Historical Periods vs. SMP
(10th to 90th Percentile)



Sources: Bureau of Economic Analysis; Federal Reserve Bank of New York, modified by the D. E. Shaw group; Haver Analytics; the D. E. Shaw group.

We agree that growth likely will be lower this year than last. And there are plenty of reasons to think that the trend rate of GDP growth is slower now than it was historically. Nonetheless, the low probability assigned by the SMP to robust growth strikes us as an extreme level of certainty. Is above-trend growth as implausible as the survey suggests, especially if inflation continues to moderate and the Fed embarks on a cycle of rate cuts? Not in our view. In fact, historically, when starting with growth in the vicinity of 3.1% (as the U.S. experienced in 2023), it's been roughly a coin flip whether growth remains above 3% in the subsequent year.

Conclusion

In addressing some of the ever-present challenges in economic forecasting, one approach we often find helpful is to compare expectations—our own or those of other market participants—to multiple historical periods.

Historical distributions can't tell us whether or when rapid disinflation or runaway growth will occur. But they remind us that such outcomes have happened before, even during periods preceded by notably subdued macroeconomic volatility, and with much greater frequency than recent forecasts might suggest.

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